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Naïve Theories About the Effects of Mood in Groups: A Preliminary Investigation

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We examined the content and consequences of people's naïve theories about the effects of group mood. These theories are a potential input in Kelly and Spoor's (2006) Input-Process-Outcome model of group moods and performance. In Study 1, participants generated potential positive and negative consequences of group moods, which were coded using an adapted form of Bales' Interaction Process Analysis (Bales, 1970). Participants believed that positive and negative moods have implications for both task and relationship processes, and these consequences varied according to group type (creativity, friendship, decision making, and sport team). In Study 2, participants watched an ostensible group interaction among friends or strangers who had just had positive or negative experiences. Perceptions of the interaction varied in a manner consistent with naïve theories about group moods and their effects. Implications for future research on group moods are discussed.

KEYWORDS groups, mood, naïve theories

The affective character of groups is readily apparent in the heated and emotional exchanges that occur during political discussions, the emotional reactions of sports teams (and their fans) to victories and losses, and the feelings of tension and hostility that some people experience during departmental meetings. Clearly, groups large and small have emotional states, and are affected by these states in ways that are distinct from the experiences of individual group members. It is likely that the impact of these affective states is partially shaped by group members' prior beliefs and expectations. In particular, naïve theories about group mood may influence some aspects of a group's interaction and performance. In this research, we explored whether people have naïve theories about group mood and whether such theories subsequently affect perceptions of group interaction. In Study 1, we used a qualitative approach to examine the content and nature of naïve theories. In Study 2, we conducted an experiment to see whether and how naïve theories can bias perceptions of group interaction.

Emerging research and theory suggests that group affective states can influence group interaction and performance. These states have been defined in various ways, often stressing

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elements of within-group agreement or the homogeneity of positive or negative affective experiences (George, 1996; Kelly & Barsade, 2001; Kelly & Spoor, 2006). Thus, we define *group moods* as relatively diffuse and generalized positive or negative affective states that are shared among group members. Other potentially important group affective states include group affective tone (George, 1989, 1995), defined as a group's characteristic level of affect, and shared emotional states (Barsade & Gibson, 1998), which may result from strong group-related outcomes such as success or failure.

Given that research and theory on group affective states is still in the early stages (Barsade & Gibson, 1998; Kelly, 2001; Kelly & Barsade, 2001), many topics remain unexplored. However, drawing on the functional perspective toward groups (Hollingshead et al., 2005), Kelly and Spoor (2006) have recently suggested that an input-process-output (I-P-O) model may be useful for analyzing the effects of group affective states. Kelly and Spoor argue that group affective states, such as group moods or group emotions, serve as input factors that subsequently affect group interaction processes and a group's eventual output. Affective inputs could influence a variety of group processes, such as affect regulation, information processing, cooperation, and coordination. Important output consequences include affective states themselves, as well as performance outcomes. Although Kelly and Spoor's model focuses on affective states as the primary input factors, other nonaffective factors may also serve as inputs to the group process (see also Kelly & Barsade, 2001). In this research, we explore one potentially important nonaffective input factor, namely group members' naïve theories about group mood.

Naïve theories as a source of information about mood effects in groups

Although we view group mood as a group-level phenomena, there is clearly a role for the experiences and beliefs of individual group members regarding group mood. Naïve theories, also referred to as lay, implicit, intuitive, or common sense theories (Heider, 1958; Hong, Levy, & Chiu, 2001; Wegener & Petty, 1998), refer to the organized knowledge and beliefs that people have regarding a particular target or situation (Wegner & Vallacher, 1977). As such, individuals' naïve theories often guide their behavior within that situation (Dweck, Chiu, & Hong, 1995; Hong et al., 2001; Knee, Nanayakkara, Vietor, Neighbors, & Patrick, 2001). Naïve theories have been explored in the domains of the self (Dweck et al., 1995; Wegner & Vallacher, 1977), leadership (Lord, Binning, Rush, & Thomas, 1978), relationships (Knee et al., 2001), and stereotypes (Levy, Plaks, Hong, Chiu, & Dweck, 2001; Yzerbt, Corneille, & Estrada, 2001).

With respect to group interaction and performance, there is some evidence that naïve theories guide perceptions of group performance (Guzzo, Wagner, Maguire, Herr, & Hawley, 1986; Martell & Guzzo, 1991; Staw, 1975). Several researchers have examined how performance information can bias group members' recall of their group interaction and outside observers' perceptions of groups. For example, Staw (1975) found that knowledge of a group's performance outcome (success or failure) affected group members' later ratings of their actual interactions. In particular, participants who believed that their group performed well later reported that their group was more cohesive, experienced less conflict, and was more cooperative. Importantly, the outcome feedback was randomly assigned after group interaction occurred, but before ratings of that interaction were made, suggesting that naïve theories about the causes of performance *biased* group members' memories of their interactions. Guzzo et al. (1986) later found that the impact of naïve theories depended on several situational factors. For example, group members were more likely to use naïve theories to explain their group's performance when they received negative rather than positive outcome feedback.

More recently, Martell and Guzzo (1991) examined whether knowledge of a group's process or performance, relative to other groups, would affect evaluations of its performance. Participants

were shown a videotape of a group interaction and subsequently asked to provide evaluations of the group's interaction and performance. Before making these evaluations, however, participants were given either positive or negative information about the group's process or performance, ostensibly from a panel of experts. Participants' own evaluations of the group's interaction and performance were affected by this performance information, such that their ratings were biased in a direction consistent with the information they were given. In addition, participants were more likely to recall instances of effective behavior in positive process and performance conditions.

In a similar fashion, we believe that naïve theories about group mood may bias perceptions of a group's performance and interactions, which could have important consequences for the group. For example, a supervisor may be less likely to seriously consider the recommendations of a group that he or she believes was in a negative mood if the supervisor believes that negative group moods have negative decision-making consequences. And the naïve theories of actual group members may influence how they respond to their interactions (e.g. motivation to continue working, desire to remain in the group, satisfaction, etc.). It should be noted that naïve theories can produce important consequences by guiding individuals' behaviors and reactions within social situations, regardless of their accuracy or whether they are consciously used (Wegener & Petty, 1995). We also believe that naïve theories of both interacting group members *and* outside observers of the group can have important consequences, although from the perspective of the I-P-O model (Kelly and Spoor, 2006), we are primarily interested in whether naïve theories operate as potential input factors for an interacting group.

Naïve theories reflect each person's unique experiences, both direct and indirect (Anderson & Lindsay, 1998), and research suggests that these theories may develop at a relatively young age (Zelko, Duncan, Barden, Garber, & Masters, 1986). Thus, people may develop naïve theories about group mood even if they have no personal experience with a particular group or group mood state. The prevalence of groups in the popular media and in politics, education, professional sports, etc., suggests that even novices to group life have a rich database of indirect experience on which to draw. However, direct, personal experience is probably one of the strongest influences on the content of naïve theories about group mood.

Group mood and group interaction

If naïve theories about group mood derive in part from past experiences in group settings, then a brief review of research and theory on group-level affect might provide some clues as to the content of people's naïve theories about group mood. Only a handful of researchers have examined group mood (Kelly & Barsade, 2001; Kelly & Spoor, 2006), and some have simply borrowed individual-level theories of moods and emotions to frame their research questions. At the individual level, a large body of research and theory has examined the relationship between affect and cognition (see Forgas, 1995, 2002 for reviews). For example, research from the affect priming (e.g. Bower, 1981) and affect as information perspectives (Clore, Gasper, & Garvin, 2001) suggests that mood states often bias judgments in a mood-consistent manner, such that people in positive moods make more positive judgments, whereas people in negative moods make more negative judgments. Schwarz (1990) has also suggested, from an evolutionary perspective, that moods may provide information about the environment that subsequently affects levels of information processing. In particular, negative moods may signal the need for vigilance and thus induce systematic information processing, whereas positive moods may signal a benign situation and thus induce reliance on simple heuristics or cues.

Kelly (2001) has recently suggested that individual-level mood and information processing theories may be extended to the group level. For example, Forgas (1990) found that group discussion tends to accentuate biases associated

with positive moods and attenuate biases associated with negative moods. Forgas attributed this asymmetry to more controlled (systematic) information processing among group members who are in negative moods, something often found with noninteracting individuals. More recently, Hertel, Neuhof, Theuer, and Kerr (2000) also found information processing differences between groups in positive versus negative moods. Group members who were playing a chicken dilemma game and were in positive moods were more likely to rely on heuristics (e.g. imitating their partner) to guide their behavior. Group members who were in negative moods used more rational decision-making strategies, indicating more systematic information processing. Spoor and Kelly (2004) have suggested an evolutionary argument at the group level, in line with Schwarz's (1990) reasoning at the individual level. They believe that negative group moods induce groups to engage in more systematic information processing, because such moods communicate problematic environments that need vigilant attention. Although one can debate whether and when it is legitimate to apply individual-level theories to groups (Kerr, Neidermeier, & Kaplan, 2000), these and other studies certainly suggest that individual-level mood effects may also occur at the group level, at least with respect to information processing (Kelly, 2001).

Group mood may also affect other, more uniquely group-level phenomena. For example, recent research suggests that positive group moods can improve group cohesion, leading to better cooperation and coordination (Craig & Kelly, 2000; Sanna, Parks, & Chang, 2003). This improved cooperation may in turn lead to better performance for groups in positive moods (Sabin & Gasper, 2002). Greater cohesion could also have negative consequences, however, such as distracting a group from concentrating on its task. Negative moods could have negative consequences as well, such as increasing disagreements and tension, making it impossible to reach task goals.

Some of the effects of group mood that we have described reflect relationship processes (e.g. cohesiveness, social tensions), whereas others reflect more task-oriented processes (e.g. systematic information processing). This distinction has been a commonly observed aspect of group dynamics at least since the pioneering work of Bales and his Interaction Process Analysis system (IPA; Bales, 1950, 1970), and it has been reflected in many theories about groups since that time (Bennis & Shepard, 1956; Smith & Berg, 1987; but see Ridgeway & Johnson, 1990, for a critique of this dichotomy). The IPA system (Bales, 1950, 1970) includes 12 specific behavioral categories nested within 4 overarching process categories (see Table 1). Three categories describe positive socio-emotional activities (categories 1–3), three describe negative socio-emotional activities (categories 10–12), three describe active task activities (categories 4–6), and three describe passive task activities (categories 7–9). Although the IPA system (1950) was originally created for the act-by-act coding of behavior in interacting groups, the basic categories of Bales' system could be adapted for coding written descriptions of group behavior and seem like a good match to important task and relationship behavior distinctions suggested by recent research and theory on mood in groups. Therefore, we chose to map people's naïve theories about mood in groups onto this positive and negative socio-emotional versus active and passive task distinction.

Table 1. Bales' (1970) interaction process analysis categories

General categories	Specific categories
Positive socio-emotional	(1) Shows solidarity/ seems friendly
	(2) Shows tension release/dramatizes
	(3) Agrees
Active task	(4) Gives suggestion
	(5) Gives opinion
	(6) Gives orientation
Passive task	(7) Asks for orientation
	(8) Asks for opinion
	(9) Asks for suggestion
Negative socio-emotional	(10) Disagrees
	(11) Shows tension
	(12) Shows antagonism/ seems unfriendly

Group type as a moderator

Kelly and Spoor's (2006) I-P-O model also suggests that group-level affective states seldom have uniformly positive or negative effects on group process or performance. In discussing the concept of process-performance fit (Hutson-Comeaux & Kelly, 1996; Wood, 1987), Kelly and Spoor noted that process and performance outcomes are likely to be moderated by group type. That is, the effects of changes in a group's interaction process probably depend on the particular demands of its task. Thus, we were also interested in whether naïve theories about group mood would vary across different types of groups.

In line with Bales (1950; see also Wood, 1987), the effects of group mood on group interaction and performance may depend on whether a group is relatively task-oriented or relationship-oriented. For example, the potential risks of negative moods, such as less systematic information processing, may be more important for task-oriented groups (e.g. decision making, problem solving, or creativity groups). And the potential benefits of positive moods, such as increases in cohesion or cooperation, may be more important for relationship-oriented groups (e.g. friendship cliques, sports teams), which require better relations among members. Thus, we examined naïve theories in terms of groups that are primarily task- (e.g. decision making groups, sport teams) versus relational-oriented (e.g. friendship groups, creativity groups), although we acknowledge that most groups combine aspects of both task and relational orientations.

Summary and overview of studies

In Study 1, we used a qualitative approach to explore the content of naïve theories about group moods. Participants reported their beliefs about how positive and negative moods would affect group interaction in creativity groups, friendship groups, decision-making groups, and sports teams. Their responses were then coded into an adapted form of Bales' (1950, 1970) IPA system. Although we did not have specific predictions about all effects, we did predict, based on our recent conceptual model (Kelly & Spoor, 2006), that the content of naïve theories would be moderated by mood and group type. In Study 2, we showed participants a videotape of a group interaction and manipulated whether they believed that the group contained friends or strangers who were in positive or negative moods. We then examined whether simply knowing about a group's mood affects interpretation of the interaction among group members in terms of the IPA dimensions.

Study 1

Method

Pretest We first conducted a pretest to assess our participants' familiarity with each of the group types assessed in Study 1. We were also interested in providing evidence for the distinction between task- and relationship-orientation within each of type of group. Seventeen introductory psychology students (9 males, 8 females, mean age = 19.29) rated their familiarity with examples from each of the four group types. For example, participants were asked to think about a creative advertising team as an example of a creativity group, and a selection committee choosing the best job candidate as an example of a decision-making group. For each type of group, participants also reported on its task- or relationship-orientation.

Three items assessed participants' familiarity with each type of group. Using 7-point scales, ranging from 1 to 7, participants rated how easily they could imagine themselves in such groups, how much experience they had with such groups, and the number of times they had been in such groups. Cronbach alphas for each of the four group types was good (α_{create} = .84, α_{friend} = .89, α_{decide} = .82, α_{sport} = .80), so responses to the three items were simply averaged by group type to produce overall scores. Larger scores indicated more familiarity with a particular type of group.

Participants also rated, using 7-point scales that ranged from 1 to 7, the extent to which each type of group was 'task-oriented' and 'relationship-oriented'. These items were not significantly

correlated for any of the group types ($r_{create} = -.01$, $r_{friend} = .10$, $r_{decide} = -.20$, $r_{sport} = .10$, all $ps > .44$), so responses to them were analyzed separately.

Preliminary analyses did not reveal any significant main effects or interactions with participant gender, and so subsequent analyses were collapsed across this factor. All three measures (familiarity scores, 'task orientation' ratings, and 'relationship orientation' ratings were each submitted to a repeated measures analysis of variance (ANOVA), with group type treated as the within-subjects factor. Post hoc analyses used Bonferroni's correction for multiple comparisons.

The pretest means for each measure are summarized in Table 2. Participants were at least moderately familiar with each of the four group types, as all means were above the midpoint of the scale. Familiarity ratings differed significantly across group types ($F(3, 48) = 13.51$, $p < .0001$). Post hoc analyses indicated that familiarity ratings for sports teams did not differ from familiarity ratings for friendships groups, but these ratings both were significantly higher than familiarity ratings for creativity and decision making groups, which did not differ from each other.

Participants' 'task orientation' ratings also differed significantly across group types ($F(3, 48) = 26.18$, $p < .0001$). Post hoc analyses indicated that friendship groups were rated as significantly lower in task orientation than the other three types of groups. Among the other group types, sports groups were rated significantly higher in task orientation than creativity groups.

Finally, participants' 'relationship orientation' ratings differed significantly across group types as well ($F(3, 48) = 25.19$, $p < .0001$). Post hoc analyses indicated that decision-making groups were rated as significantly lower in relationship orientation than the other three types of groups. Among the other group types, friendship groups were rated significantly higher in relationship orientation than creativity groups.

In sum, participants indicated that they were somewhat familiar with all groups, though most familiar with friendship groups and sport teams. And friendship groups were rated as lowest in task orientation, whereas decision-making groups were rated as lowest in relationship orientation.

Participants Participants in the actual study were 54 introductory psychology students (15 females and 39 males) whose participation helped them meet a course requirement. The participants were primarily European American (78%), and ranged in age from 18 to 24 ($M = 19.7$).

Procedure Participants were recruited for a study on the 'perception of groups'. They were asked to complete a two-part questionnaire. First, we presented participants with an example for each type of group (creativity, friendship, decision making, sports team).These were the same examples used in the pretest. Participants were then asked to imagine that each group was in (a) a positive mood, and (b) a negative mood, and to describe all of the possible positive or

Table 2. Pretest means and (standard deviations) for familiarity, task orientation, and relationship orientation ratings of four group types

Group type	Familiarity	Task orientation	Relationship orientation
Creativity	4.28_{a} (1.31)	5.47_{a} (1.01)	4.65_{ad} (1.27)
Decision making	4.86_{a} (1.48)	6.00_{ac} (1.41)	3.06_{b} (1.35)
Friends	6.26_{b} (0.84)	3.29_{b} (1.21)	6.41_{c} (0.80)
Sports	6.31_{b} (1.04)	6.18_{c} (0.64)	5.71_{cd} (0.92)

Notes: Higher means indicate greater familiarity, task orientation, and relationship orientation. Means in the same column that do not share subscripts are significantly different, using Bonferroni's adjustment for multiple comparisons.

negative consequences of each of these moods. All participants thus described the positive effects of positive moods, the negative effects of positive moods, the positive effects of negative moods, and the negative effects of negative moods for creativity groups, friendship groups, decision making groups, and sport teams, always in that order.

Second, participants were asked to rate the *ideal* group mood for each of the four types of groups on a 7-point scale ranging from *negative* (–3) to *positive* (3). Based on their personal knowledge and experience, what did they believe the best mood would be for a creativity group, a friendship group, a decision-making group, and a sports team?

When participants completed the questionnaire, they were debriefed, thanked, and dismissed. During their debriefing, none of the participants could guess our research hypothesis.

Coding of open-ended responses Participants' open-ended responses were coded using an adapted form of Bales' IPA system (Bales, 1970). We combined several categories that were conceptually related, but were not expected to be used very often. Categories 1 and 2 were combined into a positive socio-emotional category, categories 4, 5, and 6 were combined into an active task category, categories 7, 8, and 9 were combined into a passive task category, and categories 11 and 12 were combined into a negative socio-emotional category. Ridgeway and Johnson (1990) have argued that agreements and disagreements are not exclusively socio-emotional categories, but rather serve important task functions, because they can finalize discussion on a topic and thus move the group forward. Consistent with their argument, and to create more pure socio-emotional categories, we kept category 3 (agreements) separate from the other two positive socio-emotional categories as agreements, and we kept category 10 (disagreements) separate from the other two negative socio-emotional categories.

Two female undergraduate coders, who were unaware of the hypotheses of the study, were trained in the meaning of the original 12 categories. We described for them the types of statements that would be coded within each of those categories. We also generated and coded for them statements regarding the effects of various group moods on group performance.

After training, a subset of five questionnaires (containing more than 190 statements of consequences) was randomly selected from the full sample. Both coders independently coded every statement on those questionnaires, with a 71% agreement rate. Cohen's kappa, which corrects for chance agreement, was fair ($kappa = .56$, $p < .0001$). Bakeman, Quera, McArthur, and Robinson (1996) have shown that even when coders are reliable and accurate, a kappa coefficient may be low if there is wide variability in the a priori probabilities for each category. Disagreements between the coders were discussed and resolved by coder consensus. Each coder then independently coded approximately half of the remaining questionnaires.

Results

First, we present analyses of the frequencies (for each group type) of statements involving different IPA category and mood effect combinations, as well as examples of typical responses. Second, we present the ratings of 'ideal mood' for each type of group.

Frequency analyses Participants listed an average of 1.66 consequences for each of the 16 combinations of group type and mood effect, indicating that they were able to think of such consequences. To examine whether participants generated a different number of consequences across the group type/mood effect combinations, we conducted a 4 (Group Type) × 4 (Mood Effect) multivariate analysis of variance (MANOVA). The main effect for Mood Effect was significant ($F(3, 51) = 19.78$, $p < .0001$). Participants listed an equal number of positive consequences of positive mood and negative consequences of negative mood (Ms = 2.00) (ns). They listed significantly fewer negative consequences of positive mood

($M = 1.40$) and positive consequences of negative moods ($M = 1.23$), although these did not differ from each other (*ns*). The main effect for Group Type was also significant ($F(3, 51) = 11.07$, $p < .0001$). Participants listed more consequences for creativity groups ($M = 1.92$) than for any other type of group (*p*s < .03). And they listed significantly more consequences for friendship cliques ($M = 1.67$) than for decision-making groups ($M = 1.44$) ($p = 032$); the mean for sports teams fell in between (M=1.60) (*ns*). The interaction was not significant ($F(9, 45) = 1.65$, $p > .12$). The only times when participants had any difficulty generating consequences (i.e. greater than 15% of the sample could not generate any consequences) was when they tried to describe positive effects of negative moods in friendship groups and negative effects of positive moods in friendship groups.

Category frequencies for each of the 16 combinations of Group Type and Mood Effect were standardized by dividing those frequencies by the total number of effects generated for that group type. Because of the large number of cells, marginal means for group type and for mood effect are summarized in Table 3.

A MANOVA was conducted on these proportions.[1] The four levels of Group Type, the four levels of Mood Effect, and the six levels of the Bales' Categories were included as within-subjects factors. This analysis yielded significant multivariate effects for Group Type ($F(3, 51) = 5.99$, $p < .001$), Mood Effect ($F(3, 51) = 15.05$, $p < .0001$), and Bales Category ($F(5, 49) = 395.67$, $p < .0001$). However, all of the main effects were qualified by significant 2-way and 3-way interactions. The Group Type × Mood Effect interaction was significant ($F(8, 36) = 3.17$, $p < .006$), as were the Group Type × Bales Category interaction ($F(15, 39) = 14.27$, $p < .0001$), and the Mood Effect × Bales Category interaction ($F(15, 39) = 453.05$, $p < .0001$). Finally, the Group Type × Mood Effect × Bales Category interaction was also significant ($F(45, 9) = 4.98$, $p < .007$). Given that all of the multivariate effects were significant, separate follow-up ANOVAs were conducted on each group type, treating Bales category and mood effect as within-subjects factors. Means for these analyses and post hoc comparisons among the means are presented in Table 4. All post hoc analyses used Bonferroni's correction for multiple comparisons. To enrich the results from these analyses, we also present specific examples of consequences described by the participants.

Creativity groups In general, creativity groups were thought to benefit from positive moods, especially with respect to positive socio-emotional and active task consequences. For example, positive moods were thought to lead group members to 'be more responsive to each other and more

Table 3. Proportion of consequences generated for each Group Type and Mood Effect category

	Pos socio-emotional	Agree	Active task	Passive task	Disagree	Neg socio-emotional
Group Type						
Creativity	0.13	0.13	0.21	0.01	0.17	0.31
Friendship	0.30	0.03	0.11	0.002	0.11	0.29
Decision-making	0.04	0.20	0.21	0.02	0.24	0.26
Sport team	0.22	0.10	0.13	0.006	0.13	0.37
Mood Effect						
Pos mood/ pos effects	0.49	0.20	0.28	0.02	0.003	0.01
Pos mood/ neg effects	0.07	0.05	0.04	0.00	0.23	0.47
Neg mood/ pos effects	0.13	0.18	0.33	0.02	0.04	0.11
Neg mood/ neg effects	0.002	0.02	0.006	0.00	0.35	0.62

Note: Cell values represent the proportion of times a particular type of consequence was mentioned. Proportions were obtained for each participant by dividing each category frequency by the total number of effects generated for that group type.

Table 4. Proportion of consequences falling into each Mood Effect category for each Group Type and Bales' Category

Mood Effect	Pos socio-emotional	Agree	Active task	Passive task	Disagree	Neg socio-emotional	Row frequency	Row proportion
Creativity								
Pos mood/pos effects	0.39_{ab}	0.15_{b}	0.42_{ac}	0.03_{bd}	0.01_{d}	0.01_{d}	123	0.30
Pos mood/neg effects	0.08_{ab}	0.05_{a}	0.04_{a}	0.00_{a}	0.25_{bc}	0.54_{c}	96	0.23
Neg mood/pos effects	0.07_{ad}	0.29_{bc}	0.36_{c}	0.00_{d}	0.02_{de}	0.11_{abe}	78	0.19
Neg mood/neg effects	0.00_{a}	0.02_{a}	0.00_{a}	0.00_{a}	0.39_{b}	0.60_{b}	118	0.28
Column frequency	65	49	91	4	73	133	415	
Friendship								
Pos mood/pos effects	0.87_{a}	0.05_{b}	0.07_{b}	0.01_{b}	0.00_{b}	0.00_{b}	117	0.33
Pos mood/neg effects	0.11_{a}	0.04_{ab}	0.01_{ab}	0.00_{b}	0.11_{ab}	0.41_{c}	67	0.19
Neg mood/pos effects	0.20_{ab}	0.04_{ac}	0.36_{b}	0.004_{c}	0.03_{c}	0.05_{ac}	58	0.16
Neg mood/neg effects	0.01_{a}	0.00_{a}	0.01_{a}	0.00_{a}	0.30_{b}	0.69_{c}	118	0.33
Column frequency	126	14	41	2	47	130	360	
Decision Making								
Pos mood/pos effects	0.12_{a}	0.35_{b}	0.45_{b}	0.03_{ac}	0.01_{c}	0.03_{ac}	91	0.29
Pos mood/neg effects	0.01_{a}	0.12_{ab}	0.05_{a}	0.00_{a}	0.40_{c}	0.33_{bc}	69	0.22
Neg mood/pos effects	0.03_{a}	0.25_{bc}	0.32_{c}	0.04_{a}	0.08_{ab}	0.11_{abc}	62	0.20
Neg mood/neg effects	0.00_{a}	0.08_{a}	0.00_{a}	0.00_{a}	0.45_{b}	0.45_{b}	90	0.29
Column frequency	18	62	68	5	80	79	312	
Sport Teams								
Pos mood/pos effects	0.57_{a}	0.24_{b}	0.16_{b}	0.01_{c}	0.00_{c}	0.00_{c}	102	0.329
Pos mood/neg effects	0.07_{ab}	0.01_{a}	0.06_{ab}	0.00_{a}	0.15_{b}	0.60_{c}	71	0.21
Neg mood/pos effects	0.24_{a}	0.13_{ab}	0.29_{a}	0.02_{b}	0.03_{b}	0.15_{ab}	67	0.19
Neg mood/neg effects	0.00_{a}	0.00_{a}	0.02_{a}	0.00_{a}	0.26_{b}	0.72_{c}	106	0.31
Column frequency	84	40	43	2	42	135	346	

Notes: Cell values represent the proportion of times a particular consequence was mentioned. Proportions were obtained for each participant by dividing each category frequency by the total number of effects generated for that group type. Means in the same row that do not share subscripts are significantly different, using Bonferroni's adjustment for multiple comparisons.

patient', as well as to be 'more responsive to suggestions and ideas of others'. Negative moods were thought to produce mostly negative consequences, especially by increasing disagreements and negative interpersonal behavior. For example, negative moods were thought to lead group members to be 'overly critical of ideas and proposals', as well as making them 'more likely to bite each others' heads off'.

The univariate ANOVA revealed a significant main effect for Mood Effect ($F(3, 795) = 53.88$, $p < .0001$). Positive consequences of positive moods and negative consequences of negative moods were described most often, whereas negative consequences of positive moods and positive consequences of negative moods were described less often. The main effect of Bales category was also significant ($F(5, 795) = 5.30$, $p < .001$). Negative socio-emotional consequences were described most often and passive task consequences were described least often. These main effects, however, were qualified by a significant Mood Effect × Bales Category interaction ($F(15, 795) = 32.77$, $p < .0001$). As Table 4 shows, participants thought that the positive effects of positive moods would be primarily in terms of active task and positive socio-emotional consequences. Participants also listed agreement consequences more frequently than either negative socio-emotional or disagreement consequences. For positive effects of negative moods, however, participants listed primarily active task contributions and agreements, whereas the other categories were listed less frequently. For both positive and negative moods, participants listed the greatest number of negative effects in terms of disagreements and negative socio-emotional consequences, and other consequences were listed with lower frequency.

Friendship groups Descriptions of how mood affects friendship groups differed from descriptions of the other three group types in that participants had trouble thinking of negative effects of positive moods or positive effects of negative moods. Positive moods were thought to produce mostly positive consequences—friendship groups experiencing such moods would 'feel at ease interacting', leading to a 'joking atmosphere' and 'everyone having a good time'. Negative moods were thought to produce mostly negative consequences. For example, 'friendships would likely begin to strain as arguments would probably start breaking out' and members would make 'cruel comments' to one another.

There was a significant main effect of Mood Effect ($F(3, 795) = 17.56$, $p < .0001$). Positive effects of positive moods and negative effects of negative moods were described more often than negative effects of positive moods or positive effects of negative moods. The main effect for Bales Category was also significant ($F(5, 795) = 53.59$, $p < .0001$). As Table 4 shows, most of the consequences that participants described involved the positive socio-emotional and negative socio-emotional categories. However, a significant Mood Effect × Bales Category interaction again occurred ($F(15, 795) = 59.08$, $p < .0001$). As seen in Table 4, participants thought that the positive effects of positive moods would be primarily in terms of agreements; they rarely listed examples of the other categories. In contrast, the negative effects of positive moods were thought to be primarily in terms of negative socio-emotional consequences. The next most frequently listed categories were disagreements and positive socio-emotional consequences. Participants thought that the positive effects of negative mood would be primarily in terms of active task contributions, followed by positive socio-emotional consequences. In contrast, the negative effects of negative mood were thought to be primarily in terms of negative socio-emotional consequences, followed by disagreements.

Decision making groups Decision making groups were also described somewhat differently than the other groups, in that participants tended to describe positive and negative consequences for positive and negative moods more evenly. For example, positive moods were thought to help group members 'get along and be more willing to cooperate', but also to make them 'less likely to have the appropriate seriousness for dealing with such an important decision'. Similarly, negative moods were thought to make group members 'more likely to ignore or reject

teammates ideas and opinions', but also to help them 'stay sufficiently serious when making the decision'.

There was a significant main effect for Mood Effect ($F(3, 795) = 5.08$, $p < .001$). Participants were slightly more likely to describe positive effects of positive moods and negative effects of negative moods than negative effects of positive moods and positive effects of negative moods. A significant main effect was also found for Bales Category ($F(5, 795) = 21.25$, $p < .0001$). More effects were described for the agree, active task, disagree, and negative socio-emotional categories than for the positive socio-emotional and passive task categories. However, there was again a significant Mood Effect × Bales Category interaction ($F(15, 795) = 16.70$, $p < .0001$). As Table 4 shows, participants thought that the positive effects of positive moods would be primarily in terms of active task contributions and agreements; the other categories were listed significantly less often. In contrast, the negative effects of positive moods were primarily in terms of disagreements, followed by negative socio-emotional and agreement consequences. Participants thought that the positive effects of negative moods would be primarily in terms of active task consequences, followed by agreement and negative socio-emotional consequences, whereas disagreements and negative socio-emotional consequences were listed most frequently as the negative effects of negative moods.

Sport teams Descriptions of how mood affects sport teams tended to focus on issues of confidence, focus, and the ability to work together. Positive moods were thought to make group 'members more likely to be optimistic in the face of losing or setbacks', and to allow them 'to work together well and maintain the collective good mood'. But positive moods were also thought to make group members 'too self-confident' and to 'not be serious enough to stay focused on the game'. Negative moods were thought to help group members 'stay more focused on the game', but also to make them 'much more likely to just give up and accept defeat'.

There was a significant main effect for Mood Effect ($F(3, 795) = 4.02$, $p < .002$). As with friendship groups, participants were more likely to describe positive effects for positive mood and negative effects for negative moods. A significant Bales Category main effect ($F(5, 795) = 42.05$, $p < .0001$) was also found. Participants described many positive and negative socio-emotional effects, but few passive task effects. And again there was a significant Mood Effect × Bales Category interaction ($F(15, 795) = 32.00$, $p < .0001$). As seen in Table 4, participants thought that the positive effects of positive moods would be primarily in terms of positive socio-emotional consequences. Agreement and active task consequences were the next most frequent categories; the remaining categories were almost never listed. Participants thought that the negative effects of positive moods would be in terms of negative socio-emotional consequences. Disagreements were the next most frequent category, followed by positive socio-emotional and active task consequences. The positive effects of negative moods were more equally spread across the six Bales categories, although active task and positive socio-emotional consequences were listed most often. Negative socio-emotional and agreement consequences were also listed frequently. As for the negative effects of negative moods, the primary effect was in terms of negative socio-emotional consequences. Disagreements were listed less frequently than negative socio-emotional consequences, but more frequently than the remaining four categories.

Ideal group mood A 2 (Gender) × 4 (Group Type) ANOVA was conducted on participants' rating of ideal group moods, with Group Type treated as a within-subjects factor. The main effect for Group Type was significant ($F(3, 156) = 23.19$, $p < .0001$). In general, participants rated the ideal group mood as somewhat positive. However, friendship groups required the most positive mood ($M = 2.05$) (ps $< .001$), whereas decision making groups required the most neutral mood ($M = .55$) (ps $< .0001$). The mean ideal mood for creativity groups ($M = 1.38$) and sport teams

($M = 1.50$) fell inbetween and were not significantly different from each other ($p > .90$).

This effect was qualified by a significant Gender × Group Type interaction ($F(3, 152) = 3.84$, $p < .02$). Post hoc analyses, adjusted using the Bonferroni correction, indicated that women's ratings of the ideal group mood for the four group types were all relatively positive ($M_{decision} = .87$, $M_{sport} = 1.33$, $M_{creative} = 1.40$, $M_{friend} = 1.80$) and not significantly different (ps > .43). In contrast, men rated the ideal mood for decision making groups as significantly more neutral ($M = .23$) than the ideal moods for the other three group types (ps < .0001). Men also rated the ideal mood for friendship groups as significantly more positive ($M = 2.31$) than the ideal moods for the other three group types (ps < .0001). The ideal moods for creativity groups and sports groups (Ms = 1.36 and 1.67, respectively) did not differ significantly ($p > .70$).

Study 2

Study 1 examined the content of naïve theories about the effects of group mood. We found evidence that people have varying beliefs about how a group's mood will affect the quality of member interactions. These effects were both positive and negative and varied across different types of groups. Although the results of Study 1 provide some insights into how people think about mood in groups, they did not reveal whether these beliefs actually influence perceptions of a group or the actual behavior of group members. We conducted Study 2 to explore the first of these issues.

Participants watched a videotaped interaction of a decision-making group and then completed questionnaire measures based on the Bales' (1970) IPA categories. Participants were told that the group's mood was either positive or negative. We also manipulated whether participants believed that the group consisted of friends or strangers. We assumed that the stranger condition would correspond to the decision-making groups in Study 1, given that no information was provided to participants in that study about the relationships among group members. Therefore, we predicted that Bales' responses for the stranger condition would vary as a function of mood in a manner similar to the responses shown for decision-making groups in Table 4. In contrast, we expected responses for the friends condition to show a pattern similar to the one for friendship groups in Table 4. To be more specific, we expected positive mood to strongly influence the degree to which participants perceived positive socio-emotional responses in the friends condition, but to affect perceptions of positive socio-emotional responses in the stranger condition more moderately. Responses involving active task consequences, in contrast, were expected to be more prevalent in the positive mood condition for strangers, but more prevalent in the negative mood condition for friends. Passive task consequences showed no differences for either mood effect or group type in Study 1, so we did not expect such effects in Study 2. Finally, negative socio-emotional responses were expected to be more prevalent in the negative mood condition for both types of group.

Method

Participants Participants were 94 introductory psychology students (57 male, 37 female) who received partial course credit toward a course requirement for participating. Participants were primarily European American (77%) and ranged in age from 18 to 31 ($M = 19.84$, $SD = 2.03$).

Procedure Participants were told that the study involved perceptions of small groups and that they would watch a videotaped interaction (from an earlier experiment) of a group working on a task. In the *friends* conditions, participants were told that the group consisted of friends who had signed up to participate together. In the *strangers* conditions, participants were told that the group consisted of strangers who did not know each other before the experiment. In the *positive mood* conditions, participants were told that just before its interaction was taped, the group had watched and rated funny film clips. In the *negative mood* conditions, participants were told that the group had watched and rated sad film clips just before its interaction was taped. Participants were given examples of well-known funny and sad films so that they had a better sense of what moods the groups were experiencing.

All participants then watched a nine-minute videotape of a group interaction developed by Carlston and Spoor (2004) for an unrelated study on perceptions of opinion minorities. The tape showed four undergraduate research assistants (three males, one female) discussing a fictitious civil case in which a lumber company was suing an airline for damages (Kruglanski, Webster, & Klem, 1993). Three group members favored one side of the case, but one group member disagreed, so the group could not reach a consensus. Carlston and Spoor instructed their research assistants to disagree, but to also remain polite and sociable throughout their group interaction. Group members said nothing explicit about their affective states during the interaction.

After watching the videotape, participants completed a short questionnaire assessing their perceptions of the interaction, including manipulation checks and perceptions of the Bales' (1970) IPA categories. The latter measures involved questions about prototypical examples of the four major IPA categories (positive socio-emotional, active task, passive task, and negative socio-emotional). Participants indicated the extent to which each behavior occurred in the group using 11-point scales ranging from 1 (*not at all*) to 11 (*extremely*). Given the nature of the group discussion (one group member always disagreed and the other three members always agreed), we did not assess the 'agrees' or 'disagrees' subcategories separately.

Participants were then thanked, debriefed, and dismissed. During debriefing, none of the participants expressed doubts about the reality of the group. About 20% of the participants thought that the group's affective state or composition might have affected its interaction. However, none of the participants thought that this information affected their judgments about the group.

Results

All measures were submitted to a 2 (positive or negative group mood) × 2 (friends or strangers) between-subjects ANOVA.

Manipulation Checks Two items served as a manipulation check for perceptions of the group's mood. Participants were asked, 'What was the group's emotional tone?' and 'What was the group's mood?' Responses were made on 11-point scales ranging from 1 (*negative*) to 11 (*positive*). Responses to the two items were highly correlated ($r = .78$), so they were averaged to create a scale measuring the perceived mood of the group. Analysis of this scale yielded only a significant main effect for Group Mood ($F(1, 90) = 3.97$, $p < .05$). Participants who were told that the group had watched funny films rated the group's mood as more positive ($M = 5.38$) than did participants who were told that the group had watched sad films ($M = 4.60$). Although participants rated the group's mood as neutral (and even slightly negative) in both conditions, the manipulation did seem to affect their perceptions in the intended direction. Again, the fact that the group was discussing a civil trial, and that one group member dissented from the majority, may explain why the group's mood was not rated as more positive or negative.

Two items served as a manipulation check for group type. Participants were asked, 'How well did the group members know each other?' and 'How "close" did the group members seem to be?' Responses were given on 11-point scales ranging from 1 (*not at all*) to11 (*extremely*). Responses to the items were highly correlated ($r = .75$), so they were averaged to create a scale measuring perceived group type. Analysis of this scale yielded only a significant main effect for Group Type ($F(1, 90) = 22.55$, $p < .0001$). Participants who were told that the group consisted of friends rated the group as more close ($M = 4.88$) than did participants who were told that the group consisted of strangers ($M = 2.92$). Although neither group was perceived as particularly close, our manipulation did seem to affect participants' perceptions of group members' relationships in the intended direction.

Perceptions of Bales' IPA categories Responses on the Bales' category scales as a function of mood and group type are summarized in Table 5. Within and across conditions, *t* tests revealed that participants perceived that active task behaviors (e.g. providing suggestions) and negative socio-emotional behaviors

Table 5. Study 2: Mean ratings of group interactions

Group and mood	Positive socio-emotional	Active task	Passive task	Negative socio-emotional
Friends/positive mood	6.12_{a}	7.96_{ab}	4.31_{a}	7.58_{a}
Friends/negative mood	5.67_{a}	8.81_{a}	3.71_{ab}	8.81_{b}
Strangers/positive mood	6.00_{a}	8.07_{ab}	3.30_{ab}	8.44_{ab}
Strangers/negative mood	5.40_{a}	7.20_{b}	2.90_{b}	9.10_{b}

Note: Means in the same column that do not share subscripts are significantly different.

(e.g. rejecting each others' ideas) occurred more frequently than the scale midpoint (ps < .001), whereas passive task behaviors (e.g. asking for suggestions) occurred less frequently than the scale midpoint (ps < .0001). In contrast, positive socio-emotional behaviors (e.g. being responsive to others' ideas) occurred at levels that did not differ from the scale midpoints (p > .49). Across conditions, responses to the measures were only modestly correlated (rs ranged from –.36 to .41), so we analyzed each behavior separately.

Positive socio-emotional To assess positive socio-emotional behavior in the group, participants were asked, 'To what extent did the group members demonstrate acceptance and openness to the ideas of others?' We expected only a small difference in favor of positive mood in the strangers condition, but a larger difference in favor of positive mood in the friends condition. Although the mean responses showed this pattern, there were no significant main effects or interactions in the analysis.

Active task To assess active task behavior in the group, participants were asked, 'To what extent did the group members offer facts, opinions and other relevant information to help the group achieve its goal?' We expected that active task behavior would seem more prevalent in the positive mood condition for strangers, but more prevalent in the negative mood condition for friends. The analysis yielded a marginal main effect for Group Type ($F(1, 90) = 3.21$, $p < .08$). Friends ($M = 8.39$) seemed to exhibit more active task behavior than strangers ($M = 7.64$). But consistent with our predictions, this main effect was qualified by a significant Group Mood × Group Type interaction ($F(1, 90) = 4.24$, $p < .05$). As shown in Table 5, active task behavior was seen as more prevalent in the negative mood/friends condition, and least prevalent in the positive mood/strangers condition.

Passive task To assess passive task behavior in the group, participants were asked, 'To what extent did the group members request information from other members?' Passive task behavior was not expected to vary as a function of our manipulations, and in fact the analysis yielded only a marginally significant effect for Group Type ($F(1, 90) = 3.60$, $p < .07$). Although the means were relatively low across conditions, participants perceived that friends exhibited somewhat more passive task behavior ($M = 4.01$) than strangers ($M = 3.10$).

Negative socio-emotional To assess negative socio-emotional behavior in the group, participants were asked, 'To what extent did group members reject the ideas of others?' Negative socio-emotional behavior was expected to be more prevalent in the negative mood condition for both group types. Consistent with that prediction, that analysis showed only a significant main effect for Group Mood ($F(1, 90) = 5.48$, $p < .03$). Negative mood groups seemed to exhibit more negative socio-emotional behavior ($M = 8.95$) than did positive mood groups ($M = 8.01$).

Relations among measures Although perceptions of the four behaviors were only moderately correlated, we briefly describe the pattern of correlations within experimental conditions. In all conditions, responses to the negative and positive socio-emotional items were negatively correlated. This correlation was weakest and nonsignificant in the positive mood/strangers

condition ($r = -.20$) and strongest in the negative mood/strangers condition ($r = -.64$). Responses to the negative socio-emotional and active task items were not significantly correlated in any of the conditions. Responses to the negative socio-emotional and passive task items were significantly correlated only in the negative mood/friends condition ($r = -.45$).

Responses to the positive socio-emotional and active task items were not significantly correlated in any of the conditions. Responses to the positive socio-emotional and passive task items were significantly and positively correlated in the positive mood/friends and the negative mood/friends conditions (rs = .52 and.47, respectively). Responses to the active and passive task items were not significantly correlated in any of the conditions.

General discussion

In line with Kelly and Spoor's (2006) I-P-O model of group moods and performance, we were interested in the potential role of naïve theories about group mood as an input factor that has the potential to influence group processes and performance. Across two studies, using very different methods, we examined the content and effects of naïve theories about group mood. Using qualitative procedures in Study 1, we found that participants' naïve theories included content about both task and interpersonal aspects of group interaction. Study 2, which used quantitative procedures, showed that naïve theories about group mood biased observers' perceptions of a group's interaction.

The results of Study 1 indicate that naïve theories about group mood might lead people to believe that positive moods will lead to positive interpersonal consequences, such as increased agreement and better communication among group members, all of which could strengthen group cohesion. However, participants in Study 1 also felt that positive moods could distract group members from their task and reduce careful information processing. Negative group moods were expected to produce negative interpersonal consequences, increased disagreement, and reduced effort. This effect was also evident in the perceptions of Study 2 participants, who perceived more negative interactions in negative mood groups. However, participants in Study 1 also believed that negative moods could produce greater attention to detail, and in some cases, improved communication. These beliefs were also reflected in the perceptions of Study 2 participants, who saw more active task contributions among friends in negative moods.

In both studies, we also found that the effects of group mood depended on the type of group that was considered. In Study 1, we examined groups that varied in whether they were more relationship-oriented (sports teams and friendship groups) or task-oriented (decision making and creativity). For relationship-oriented groups, the expected effects of group mood were primarily in the positive and negative socio-emotional categories of behavior. In contrast, most of the effects for task-oriented groups were in the active and passive task categories of behavior. In particular, participants acknowledged that negative moods might sometimes have positive effects, such as increasing task-oriented contributions. In Study 2, we only examined perceptions of a task-oriented group. The strangers condition in Study 2 was most similar to the decision-making groups of Study 1, whereas the friends condition in Study 2 was most similar to the friendship groups in Study 1. In line with the naïve theories about mood effects in decision-making groups that we found in Study 1, participants' perceptions of the group interaction in Study 2 were primarily in the categories of active task contributions and negative socio-emotional interactions. However, there was some evidence that these effects might be tempered by the composition of the group.

It is interesting to note how the naïve theories of our participants sometimes paralleled and sometimes differed from what might be expected from theories about mood in individuals. For example, negative mood groups were expected to engage in more active task behaviors (Study 1), and such behaviors were often seen by observers of such groups (Study 2). This parallels the increased systematic or effortful processing that often results from negative moods among

individuals (Forgas, 1995). In contrast, people's theories also suggested that positive group moods would also increase active task behaviors. It is possible that both positive and negative moods can increase task contributions at the group level, but via different mechanisms. For example, negative moods may increase task contributions through more effortful information processing, whereas positive moods may increase task contributions through the establishment of more egalitarian norms for task contributions, which might develop from greater group cohesion. Group mood was also expected to affect agreements and disagreements in Study 1, which is consistent with this possibility. As we argued previously, agreements and disagreements may actually serve both task and relational functions, depending on the type of group and the group's mood (Ridgeway & Johnson, 1990).

It is also interesting to note that participants in Study 1 expected positive and negative moods to have both positive and negative effects. Although participants tended to list more positive effects of positive moods and negative effects of negative moods, they also listed some negative effects of positive moods and positive effects of negative moods. In sports teams, for example, many participants believed that negative moods could produce *more positive* socio-emotional interaction.

Participants' ratings of the ideal group mood in Study 1 provide further evidence that naïve theories about group mood are complex and vary across types of groups. Although participants tended to believe that positive moods were good for all groups, there was variability across group types in the degree of positivity thought to be desirable. In particular, the ideal mood for decision-making groups was more neutral than that for other group types. Maybe people believe that neutral moods are more appropriate for group tasks that require intensive information processing. This possibility is consistent with some individual-level research on mood regulation. For example, Erber and Erber (1994) found that students put themselves in more neutral moods before beginning a class, whereas similar mood regulation was not found after the class finished. In a similar vein, Erber, Wegner, and Therriault (1996) found that participants regulated their mood to be more neutral when they thought that they would be completing tasks with a stranger rather than alone.

Taken together, the results of the two studies indicate that a broad theory of group affect will probably be more complex than individual-level theories. In particular, group theories of affect will also need to incorporate the effects of mood on interpersonal interaction. Because such interaction is an important aspect of most groups, group moods may well affect interpersonal interaction in all types of groups, but these effects are likely to be stronger for relationship-oriented groups. Theories of group affect will also need to consider a group's primary function, especially whether the group serves predominantly task or social purposes. Finally, it is interesting to note that our participants' naïve theories about group mood were much more complex and differentiated than current research and theory on group affect.

Strengths and limitations

To our knowledge, this research is the first attempt to explore the content and consequences of naïve theories about group mood. We believe that such theories can affect both actual group members and outside observers, and that naïve theories likely reflect people's actual experiences in groups. We hope that this research is an example of how diverse methods are both useful and necessary for examining group moods. However, we should also note some potential limitations of the research.

First, our participants' naïve theories may not accurately reflect actual group processes. That is, the actual consequences of positive and negative moods in various group types may or may not match our participants' expectations about these effects. There is clearly a need for more research on group mood and interaction. At this point, it is simply too early to judge the accuracy of naïve theories about such matters. But it is interesting to note that people do seem to have naïve theories and use them to evaluate groups.

The generalizability of our research findings may be limited because we studied only college

students from the United States. Although our pretest sample reported reasonable levels of experience with the groups that we asked them about, they may have been less experienced than people from other settings. Older participants, for example, may have more complex and differentiated theories because they have had more diverse experiences in groups. Further, there may be important differences in the content of naïve theories across cultures. People from cultures that discourage emotional displays, for example, may incorporate more negative consequences of moods into their naïve theories. Such cultural differences in naïve theories may have vital consequences for culturally diverse groups. A related issue is whether naïve theories about group mood cause particular experiences within a group, or are the result of particular experiences in groups? Kelly and Spoor's (2006) model suggests a bidirectional relationship between these factors, but future research should examine this issue.

We also limited the type of group that people thought about when they generated their responses in Study 1. Although providing specific examples of groups was necessary to focus the participants' responses, more complex theories might have emerged if we had allowed participants to choose the type of group that they would consider. Our pretest data also showed that participants had varying levels of experience with the types of groups in Study 1; they were most experienced with friendship groups and sports teams. Thus, it may have been more difficult for participants to imagine the effects of mood in creativity and decision-making groups. Future research should also examine how people spontaneously interpret an interaction and the extent to which information about group mood biases perceptions away from these baseline perceptions. In both of our studies, participants were always given information about the group's affective state. It may be useful in future studies to include a control condition in which participants are not given information about a group's mood.

A final limitation is that we were concerned in both studies with recollections and observations of groups—we did not study how naïve theories affected actual behaviors within groups. Although this approach is consistent with previous research on naïve theories about group performance (e.g. Guzzo et al., 1986; Martell & Guzzo, 1991; Staw, 1975), there is a clear need to examine how and if naïve theories about group mood affect group members in actual interactions. It is possible that naïve theories have relatively small or opposite effects during actual interactions. Indeed, research on affective forecasting (Wilson & Gilbert, 2005) suggests that individuals are often inaccurate when predicting how they will respond to emotional events. Despite this limitation, however, we believe that the naïve theories of observers may provide clues for how actual group members think about and respond to affective influences in groups. Thus, understanding the content of naïve theories may enable us to predict group members' reactions to affective influences (Wegener & Petty, 1995).

Implications and future research

Investigations of naïve theories about social phenomena are important for two reasons. First, these theories are important sources of hypotheses, because they are based on observations of real world phenomena. Second, these theories are important sources of possible explanations for various phenomena, because they often guide individual perceptions and behavior.

Given the findings from our research, several questions follow. In particular, are these naïve theories correct? Do negative moods truly lead to greater task focus, primarily in decision-making and creativity groups? At the individual level, there is ample research suggesting that negative mood states lead to more systematic processing of information during decision-making tasks (Forgas, 1995), and recent research suggests that negative moods may also facilitate individual creativity under some circumstances (e.g. George & Zhou, 2002). At the group level, Forgas' (1990) research suggests that groups in negative moods may also engage in more systematic information processing, suggesting that groups in such moods are more task focused. However, as discussed earlier, there is little research examining how group affect influences information processing (Kelly, 2001).

Another major research question is how naïve theories about group mood and group process interact and affect group performance. Would an increased task focus produced by negative moods in decision-making groups improve their decision-making? Would the increased cohesion and cooperation stemming from positive moods improve their decision making as well, and perhaps more? Recent research by Sabin and Gasper (2002) suggests that the positive interpersonal consequences of positive group moods may help such groups to engage in more systematic information processing. In evaluating these and other findings, it will be important to keep in mind the potential role of naïve theories. For example, do these effects only occur when group members are relatively unaware of their mood? If they become aware, then will they attempt to correct for the biasing effects of that mood, based on the content of their naïve theories (Wegener & Petty, 1995)? Similarly, research suggests that effective leaders are able to manage and influence group members' emotional states (Ashkanasy & Tse, 2000; Bass & Avolio, 1994)—it would be interesting to examine how naïve theories about the effects of moods on groups cause leaders to attempt to control other members' needs, in order to group process and performance. Future research might fruitfully address all of these issues.

Note

1. Because proportions are not normally distributed, they were transformed using the arcsine transformation. In all cases, analyses using the arcsine and the raw proportions yielded virtually identical results. Therefore, for ease of presentation, the analyses using the raw proportions are presented.

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References

Anderson, C. A., & Lindsay, J. J. (1998). The development, perseverance, and change of naïve theories. *Social Cognition, 16*, 8–30.

Ashkanasy, N. M., & Tse, B. (2000). Transformational leadership as management of emotion: A conceptual review. In N. M. Ashkanasy, C. Hartel, & W. Zerbe (Eds.), *Emotions in the workplace: Developments in the study of the managed heart* (pp. 221–235). Westport, CT: Quorum Books.

Bakeman, R., Quera, V., McArthur, D., & Robinson, B. F. (1996). Detecting sequential patterns and determining their reliability with fallible observers. *Psychological Methods, 2*, 357–370.

Bales, R. F. (1950). *Interaction process analysis: A method for the study of small groups*. Cambridge, MA: Addison-Wesley.

Bales, R. F. (1970). *Personality and interpersonal behavior*. New York: Holt, Rinehart, & Winston.

Barsade, S. G., & Gibson, D. E. (1998). Group emotion: A view from top and bottom. In D. H. Gruenfeld, B. Mannix, & M. Neale (Eds.), *Research on managing groups and teams* (pp. 81–102). Stamford, CT: JAI Press.

Bass, B. M., & Avolio, B. J. (1994). *Improving organizational effectiveness through transformational leadership*. Thousand Oaks, CA: Sage.

Bennis, W. G., & Shepard, H. A. (1956). A theory of group development. *Human Relations, 9*, 415–437.

Bower, G. H. (1981). Mood and memory. *American Psychologist, 36*, 129–148.

Carlston, D. E., & Spoor, J. R. (2004, June). *Perspective constrains priming: The impact of primed constructs depends on perceivers' point of view*. Paper presented at the Duck Conference on Social Cognition, Duck, NC.

Clore, G. L., Gasper, K., & Garvin, E. (2001). Affect as information. In J. P. Forgas (Ed.), *Handbook of affect and social cognition* (pp. 121–144). Mahwah, NJ: Erlbaum.

Craig, T. Y., & Kelly, J. R. (2000, May). *Group mood and perceptions of group environment*. Paper presented at the annual meeting of the Midwestern Psychological Association, Chicago, IL.

Dweck, C. S., Chiu, C., & Hong, Y. (1995). Implicit theories and their role in judgments and reactions: A world from two perspectives. *Psychological Inquiry, 6*, 267–285.

Erber, R., & Erber, M. W. (1994). Beyond mood and social judgment: Mood incongruent recall

and mood regulation. *European Journal of Social Psychology, 24*, 79–88.

Erber, R., Wegner, D. M., & Therriault, N. (1996). On being cool and collected: Mood regulation in anticipation of social interaction. *Journal of Personality and Social Psychology, 70*, 757–766.

Forgas, J. P. (1990). Affective influences on individual and group judgments. *European Journal of Social Psychology, 20*, 441–453.

Forgas, J. P. (1995). Mood and judgment: The affect infusion model (AIM). *Psychological Bulletin, 117*, 38–66.

Forgas, J. P. (2002). Feeling and doing: Affective influences on interpersonal behavior. *Psychological Inquiry, 13*, 1–28.

George, J. M. (1989). Mood and absence. *Journal of Applied Psychology, 74*, 317–324.

George, J. M. (1995). Leader positive mood and group performance: The case of customer service. *Journal of Applied Social Psychology, 25*, 778–794.

George, J. M. (1996). Group affective tone. In M. A. West (Ed.), *Handbook of work group psychology* (pp. 77–93). Chichester, UK: Wiley.

George, J. M., & Zhou, J. (2002). Understanding when bad moods foster creativity and good ones don't: The role of context and clarity of feelings. *Journal of Applied Psychology, 87*, 687–697.

Guzzo, R. A., Wagner, D. B., Maguire, E., Herr, B., & Hawley, C. (1986). Implicit theories and the evaluation of group process and performance. *Organizational Behavior and Human Decision Processes, 37*, 279–295.

Heider, F. (1958). *The psychology of interpersonal relations*. New York: Wiley.

Hertel, G., Neuhof, J., Theuer, T., & Kerr, N. L. (2000). Mood effects on cooperation in small groups: Does positive mood simply lead to more cooperation? *Cognition and Emotion, 14*, 441–472.

Hollingshead, A. B., Wittenbaum, G. M., Paulus, P. B., Hirokawa, R. Y., Ancona, D. G., Peterson, R. S., et al. (2005). A look at groups from the functional perspective. In M. S. Poole & A. B. Hollingshead (Eds.), *Theories of small groups: Interdisciplinary perspectives*. Thousand Oaks, CA: Sage.

Hong, Y., Levy, S. R., & Chiu, C. (2001). The contribution of the lay theories approach to the study of groups. *Personality and Social Psychology Review, 5*, 98–106.

Hutson-Comeaux, S. L., & Kelly, J. R. (1996). Sex differences in interaction style and group task performance: The process–performance relationship. *Journal of Social Behavior and Personality, 11*, 255–275.

Kelly, J. R. (2001). Mood and emotion in groups. In M. A. Hogg & R. S. Tindale (Eds.), *The Blackwell handbook of social psychology* (Vol. 3, pp. 164–181). Oxford, UK: Blackwell.

Kelly, J. R., & Barsade, S. G. (2001). Mood and emotions in small groups and work teams. *Organizational Behavior and Human Decision Processes, 86*, 99-130.

Kelly, J. R., & Spoor, J. R. (2006). Affective influence in groups. In J. Forgas (Ed.), *Affect in social thinking and behavior* (pp. 311–325). New York: Psychology Press.

Kerr, N. L., Neidermeier, K. E., & Kaplan, M. F. (2000). On the virtues of assuming minimal differences in information processing in individuals and groups. *Group Processes & Intergroup Relations, 3*, 203–217.

Knee, C. R., Nanayakkara, A., Vietor, N. A., Neighbors, C., & Patrick, H. (2001). Implicit theories of relationships: Who cares if romantic partners are less than ideal? *Personality and Social Psychology Bulletin, 27*, 808–819.

Kruglanski, A. W., Webster, D. M., & Klem, A. (1993). Motivated resistance and openness to persuasion in the presence or absence of prior information. *Journal of Personality and Social Psychology, 65*, 861–876.

Levy, S. R., Plaks, J. E., Hong, Y., Chiu, C., & Dweck, C. S. (2001). Static versus dynamic theories and the perceptions of groups: Different routes to different destinations. *Personality and Social Psychology Review, 5*, 156–168.

Lord, R. G., Binning, J. F., Rush, M. C., & Thomas, J. C. (1978). The effect of performance cue and leader behavior on questionnaire ratings of leadership behavior. *Organizational Behavior and Human Decision Processes, 21*, 27–39.

Martell, R. F., & Guzzo, R. A. (1991). The dynamics of implicit theories of group performance: When and how do they operate? *Organizational Behavior and Human Decision Processes, 50*, 51–74.

Ridgeway, C., & Johnson, C. (1990). What is the relationship between socioemotional behavior and status in task groups? *American Journal of Sociology, 95*, 1189–1212.

Sabin, K. D., & Gasper, K. (2002, February). *Who dunnit? Mood, information processing, and group problem solving*. Poster presented at the annual meeting of the Society for Personality and Social Psychology, Savannah, GA.

Sanna, L. J, Parks, C. D, & Chang, E. C. (2003). Mixed-motive conflict in social dilemmas: Mood as input to competitive and cooperative goals. *Group Dynamics: Theory, Research, and Practice, 7*, 26–40.

Schwarz, N. (1990). Feelings as information: Informational and motivational functions of affective states. In E. T. Higgins & R. M. Sorrentino (Eds.), *Handbook of motivation and cognition* (Vol. 2, pp. 527–561). New York: Guilford.

Smith, K. W., & Berg, D. N. (1987). *Paradoxes of group life—Understanding conflict, paralysis, and movement in group dynamics*. San Francisco, CA: Jossey-Bass.

Spoor, J. R., & Kelly, J. R. (2004). The evolutionary significance of affect in groups: Communication and group bonding. *Group Processes & Intergroup Relations, 7*, 398–412.

Staw, B. M. (1975). Attribution of the 'causes' of performance: A general alternative interpretation of cross-sectional research on organizations. *Organizational Behavior and Human Performance, 13*, 414–432.

Wegener, D. T., & Petty, R. E. (1995). Flexible correction processes in social judgment: The role of naïve theories in corrections for perceived bias. *Journal of Personality and Social Psychology, 68*, 36–51.

Wegener, D. T., & Petty, R. E. (1998). The naïve scientist revisited: Naïve theories and social judgment. *Social Cognition, 16*, 1–7.

Wegner, D. M., & Vallacher, R. R. (1977). *Implicit psychology: An introduction to social cognition*. New York: Oxford University Press.

Wilson, T. D., & Gilbert, D. T. (2005). Affective forecasting: Knowing what to want. *Current Directions in Psychological Science, 14*, 131–134.

Wood, W. (1987). Meta-analytic review of sex differences in group performance. *Psychological Bulletin, 102*, 53–71.

Yzerbt, V., Corneille, O., & Estrada, C. (2001). The interplay of subjective essentialism and entitativity in the formation of stereotypes. *Personality and Social Psychology Review, 5*, 141–155.

Zelko, F. A., Duncan, S. W., Barden, R. C., Garber, J., & Masters, J. C. (1986). Adults' expectancies about children's emotional responsiveness: Implications for the development of implicit theories of affect. *Developmental Psychology, 22*, 109–114.

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